

WO 2005/011503

PCT/AU2004/001041

17

Claims defining the invention are as follows:

1. A method for determining vascular characteristics for early detection of cardiovascular disease including the steps of:
  - (i) acquiring velocity displacement data from arterial colour tissue
  - 5 Doppler imaging;
  - (ii) processing the velocity displacement data to generate arterial displacement data;
  - (iii) adjusting the arterial displacement data using blood pressure data;
  - and
  - 10 (iv) analysing the adjusted arterial displacement data to characterise vascular function.
2. The method of claim 1 wherein the step of processing the velocity displacement data includes integrating velocity displacement data with  
15 respect to time.
3. The method of claim 1 wherein the step of processing the velocity displacement data includes using a readable spreadsheet for integrating velocity displacement data with respect to time.  
20
4. The method of claim 1 wherein the step of adjusting the arterial displacement data includes dividing said arterial displacement data by the cuff pressure to obtain corrected displacement data.

WO 2005/011503

PCT/AU2004/001041

18

5. The method of claim 1 wherein the step of analysing the adjusted arterial displacement data includes generating local elasticity data by correcting the arterial displacement data by dividing said arterial displacement data by the log of the cuff blood pressure.

5

6. An apparatus for determining vascular characteristics for early detection of cardiovascular disease comprising:

an ultrasonic signal source directing ultrasound signals at an artery;

an ultrasonic signal receiver receiving ultrasound signals reflected

10 from or transmitted through the artery;

means for analysing signals received by ultrasonic signal receiver to extract arterial displacement data;

means for acquiring blood pressure data;

signal processing means for adjusting said arterial displacement data

15 using the blood pressure data; and

means for analysing the adjusted arterial displacement data to characterise vascular function.

7. The apparatus of claim 6 wherein the means for analysing signals  
20 received by ultrasonic signal receiver includes means for integrating velocity displacement data with respect to time.

WO 2005/011503

PCT/AU2004/001041

19

8. The apparatus of claim 6 wherein the means for acquiring blood pressure data includes a means for measuring diastolic and mean brachial cuff blood pressure data.

5 9. The apparatus of claim 6 wherein the means for acquiring blood pressure data includes a manometer for measuring diastolic and mean brachial cuff blood pressure data.

10 10. The apparatus of claim 6 wherein the means for analysing the adjusted arterial displacement data includes a means of generating vascular function data in the form of local elasticity data.

15 11. The apparatus of claim 10 wherein the means of generating local elasticity data includes a means for correcting adjusted arterial displacement data with the log of the cuff blood pressure data.

12. A method for determining local arterial elasticity for early detection of cardiovascular disease substantially as herein described with reference to the accompanying drawings and/or examples.

20

13. An apparatus for determining local arterial elasticity for early detection of cardiovascular disease substantially as herein described with reference to the accompanying drawings and/or examples.